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Express Mail #EV339221862US Filed: 01/23/04; File No. NCR 11384 Inventor: Ahmad Said Ghazal, et al. For: Method and System For Updating... Contact: John D. Cowart/858-485-4903 Replacement Sheet 3 of 6

310 ACCESS DERIVED CONSTRAINT **RULES (DCRS) IN DATABASE** SYSTEM DICTIONARY 320 **IDENTIFY DCRS CORRESPONDING TO** TABLES AND COLUMNS SPECIFIED IN THE DATABASE QUERY 330 DERIVE ADDITIONAL CONDITIONS FROM QUERY CONDITIONS, IDENTIFIED DCRS, AND TRANSITIVE CLOSURE 340 DEVELOP ALTERNATIVE SERIES OF STEPS TO GENERATE QUERY RESULTS. INCLUDING STEPS BASED ON THE ADDITIONAL CONDITIONS 350 **ESTIMATE COSTS OF ALTERNATIVE SERIES OF STEPS** 360 **CHOOSE THE SERIES OF STEPS** WITH THE LOWEST ESTIMATED COST AS THE EXECUTION PLAN

FIG. 3

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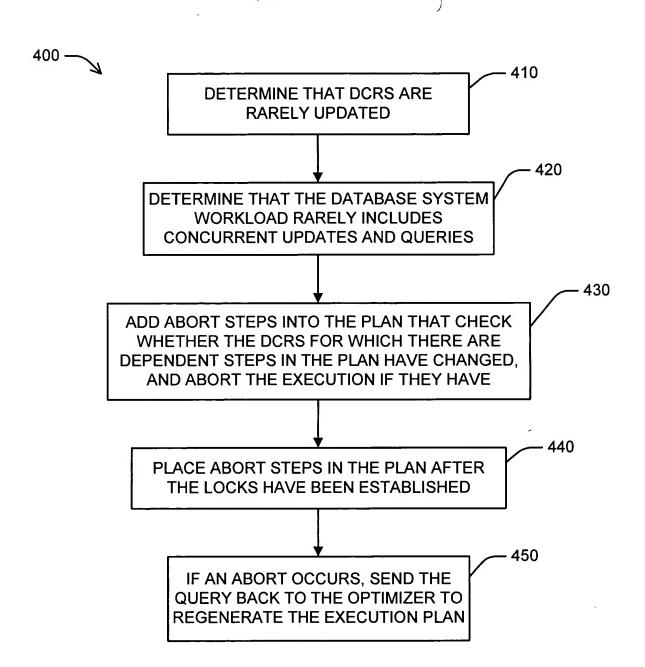


FIG. 4

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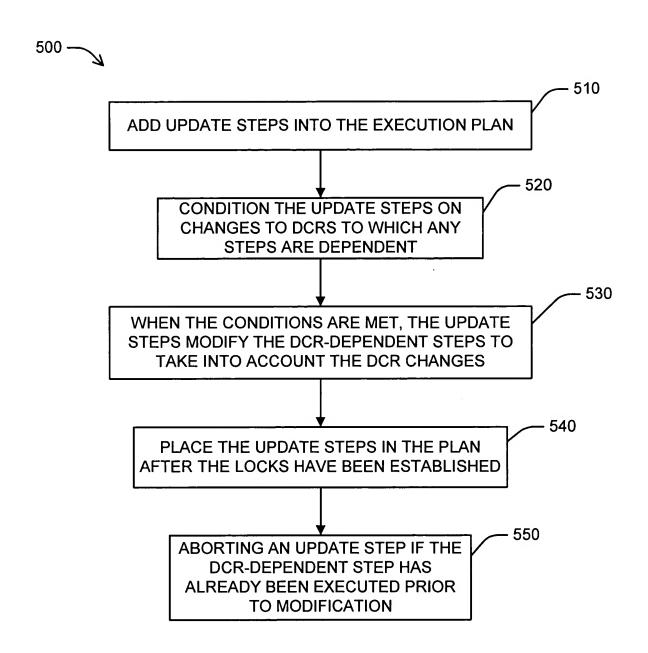


FIG. 5

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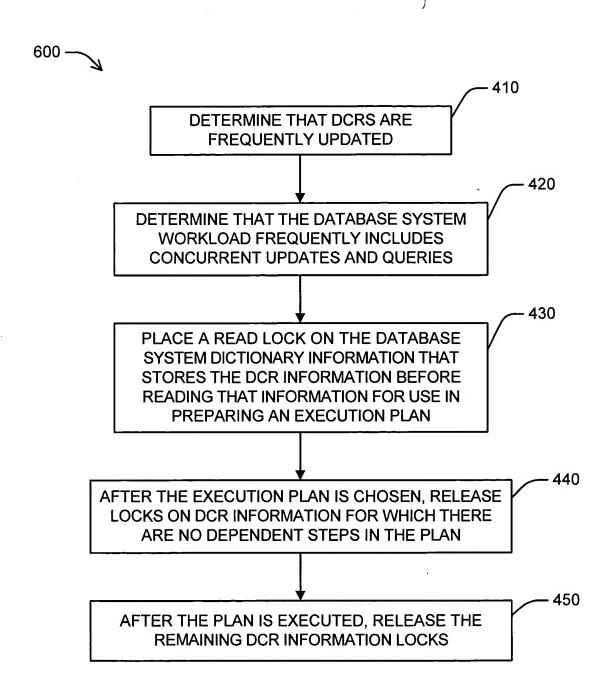


FIG. 6